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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,176	06/27/2001	Albert Hasper	ASMINT.017AUS	4537

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EXAMINER
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TSAI, CAROL S W

ART UNIT	PAPER NUMBER
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2857

DATE MAILED: 05/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/893,176

Applicant(s)

HASPER, ALBERT

Examiner

Carol S Tsai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-37 is/are allowed.
- 6) ☒ Claim(s) 1-5, 12-14, and 23-32 is/are rejected.
- 7) ☐ Claim(s) 6-11 and 15-22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 14, it is not clear what is meant by “the purge gas flows include a plurality of purge gas parameters at different parts of the semiconductor process tool”, since there is no clear and specific indications disclosed in the Specification or Drawings.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-5 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent No. 6,408,220 to Nulman.

Nulman discloses a system for monitoring consumption of utilities by semiconductor fabrication processes, comprising: at least one semiconductor process tool comprising a plurality of process-control devices for controlling process conditions within the process tool (see col. 6, lines 16-54); at least one tool controller communicating with the plurality of process-control devices according to a process recipe for treating workpieces within the process tool (see col. 7, line 52 to col. 8, line 13); and computer software residing in a memory of said tool controller, the computer software compiling and storing data relating to the consumption of resources by the tool (see Fig. 6 and col. 9, lines 36-65).

As to claim 2, Nulman also discloses at least one heating element and at least one mass flow controller (see col. 6, lines 49-51 and col. 14, lines 53-55).

As to claim 3, Nulman also discloses the computer software compiling and storing data relating to the power output to the at least one heating element and gas flow through the at least one mass flow controller (see col. 12, line 44 to col. 13, line 20).

As to claims 4 and 5, Nulman also discloses the computer software calculates resource consumption from inputs originating from the process-control devices and fed back into the tool controller (see Fig. 6 and col. 9, lines 36-43).

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As to claim 30, Nulman also disclose a method of determining resource consumption on a semiconductor process tool, the method comprising: monitoring electronic inputs and outputs controlling a semiconductor process recipe and calculating resource consumption from said inputs and outputs (see col. 3, lines 52-56; col. 4, line 48 to col. 5, line 11; and col. 8, line 22 to col. 10, line 36).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12, 13, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nulman in view of U. S. Patent No. 5,586,039 to Hirsch et al.

As noted above, with respect to claims 12 and 29, Nulman discloses the claimed invention, except for the computer software comprising an editor configured to select user-defined parameters for monitoring.

Hirsch et al. teach the computer software comprising an editor configured to select user-defined parameters for monitoring (see Figs. 2-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nulman's method to include the computer software comprising an editor configured to select user-defined parameters for monitoring, as taught by Hirsch et al., in

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order to provide the user with the operation of manipulating data with selected user-defined parameters via a display GUI.

As to claim 13, Nulman also discloses the user-defined parameters selecting from the group consisting of process gas flow, purge gas flows, electrical power consumption, and cooling water flows (see col. 6, lines 49-51).

7. Claims 23-25, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nulman in view of U. S. Patent No. 5,586,059 to Oshelski et al.

As noted above, with respect to claims 23 and 24, Nulman discloses the claimed invention, except for the computer software comprising a report generator configured to generate resource consumption reports relating to user-selected ones of parameters.

Oshelski et al. teach the computer software comprising a report generator configured to generate resource consumption reports relating to user-selected ones of parameters (see Fig. 4 and col. 6, lines 17-35).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nulman's method to include the computer software comprising a report generator configured to generate resource consumption reports relating to user-selected ones of parameters, as taught by Oshelski et al., in order that reports of selected tests performed with the stepper can be provided for subsequent analysis.

As to claim 25, Nulman does not disclose the report generator allowing user selection of a report time span.

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Oshelski et al. teach the report generator allowing user selection of a report time span (see Fig. 13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nulman's method to include the report generator allowing user selection of a report time span, as taught by Oshelski et al., in order that the time stamp of test can be provided in the report.

As to claims 27 and 28, Nulman does not disclose the resource consumption reports containing summed parameter values and process recipe details.

Oshelski et al. teach the resource consumption reports containing summed parameter values and process recipe details (see Fig. 9).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nulman's method to include the resource consumption reports containing summed parameter values and process recipe details, as taught by Oshelski et al., in order that report with summed parameter values can be used for further analysis.

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nulman in view of U. S. Patent No. 6,496,200 to Snibbe et al.

As noted above, Nulman discloses the claimed invention, except for the report generator allowing user selection of a report resolution.

Snibbe et al. teach the report generator allowing user selection of a report resolution (see col. 9, lines 8-37).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nulman's method to include the report generator allowing user selection of a report resolution, as taught by Snibbe et al., in order that the resolution of the haptic display produced by the haptic interface device can be changed by the user (see Abstract, lines 3-4).

9. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nulman in view of U. S. Patent No. 6,368,975 to Balasubramhanya et al.

As noted above, Nulman discloses the claimed invention, except for said inputs and outputs including analog/digital signals.

Balasubramhanya et al. teach said inputs and outputs including analog/digital signals (see col. 14, line 64 to col. 15, line 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nulman's method to including said inputs and outputs include analog/digital signals, as taught by Balasubramhanya et al., in order that input and output including either analog signals or digital signals can be flexibly processed by the semiconductor wafer processing tool.

***Allowable Subject Matter***

10. Claims 6-11 and 15-22, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



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11. Claims 33-37 are allowed.

U. S. Patent No. 6,408,220 to Nulman in view of U. S. Patent No. 5,586,059 to Oshelski et al. are references closest to the claimed invention. Nulman in combination with Oshelski et al. disclose a method for automatically monitoring consumption of utilities in at least one process tool with software connected to the process tool, comprising: conducting sampling of data relating to consumption of utilities from a plurality of devices and based on said sums, generating reports relating to said utility consumption data in response to requests from a user. However, Nulman in combination with Oshelski et al. do not teach conducting continual high-frequency sampling of data and storing said data in short-term memory; at specified intervals, calculating sums of said data, storing said sums in long-term memory, and erasing said data from short-term memory; and including all of the other limitations in the respective independent claims.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Arackaparambil et al. disclose a novel distributed factory system framework including a novel factory automation lifecycle having lifecycle activities for SW developing and integrating, installing and administrating, factory modeling, manufacturing planning, manufacturing controlling, monitoring and tracking and analyzing of manufacturing results.

Dor et al. disclose a method and associated apparatus for creating defect knowledge library containing case study information of wafer defects on semiconductor wafers.

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Mendez et al. disclose a system and method for predicting software models used in chemical mechanical polishing (CMP) of workpieces using material-centric process instrumentation.

Moore et al. disclose connecting semiconductor processing tools in a semiconductor processing facility to communicate with a power management system.

Oshelski et al. disclose an automated data management system for enabling the analysis and control of the performance of photolithography steppers in a submicron fabrication facility.

### ***Contact Information***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. Tsai whose telephone number is (703) 305-0851. The examiner can normally be reached on Monday-Friday from 7:30 AM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703) 308-1677. The fax number for TC 2800 is (703) 308-7382. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (703) 308-1782.

In order to reduce pendency and avoid potential delays, Group 2800 is encouraging FAXing of responses to Office actions directly into the Group at (703) 308-7382. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the

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examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.

Carol S. Tsai

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SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800